



Winter 1997

Changes Proposed to Fishing Rules on Lake Michigan and Tributaries

On November 25, 1997, the Indiana Natural Resources Commission gave the "go-ahead" to send to public hearing several proposed changes to the state's fish and wildlife standards. Included are a number of changes proposed to fishing rules for Lake Michigan and its tributaries in Northwest Indiana.

The rule proposals reflect the continuing nature of serious problems with yellow perch populations. A permanent daily bag limit of 15 yellow perch would be set for sport fishing on Lake Michigan. In the interim, a 15-perch limit is set by temporary rule for Lake Michigan and Trail Creek downstream from the Franklin Street bridge in Michigan City. Commercial fishing for yellow perch is banned on Lake Michigan. According to J. Randy Lang, fisheries biologist for the DNR, "sampling in Lake Michigan in 1997 still showed little sign of recovery."

A size minimum of 14 inches would be set for trout and salmon taken from Lake Michigan and its Northwest

Indiana tributaries. Lang said, "The 14-inch limit for Lake Michigan and its tributaries should help simplify standards for our anglers as well as improve understanding for regulatory enforcement." A daily bag limit of five "for any combination of trout and salmon" would also be set for Lake Michigan and its tributaries. No more than two lake trout could be taken daily.

A bag limit of three "black bass" would be placed on Lake Michigan. "Black bass" is a general term which includes smallmouth bass, largemouth bass, and spotted bass. Smallmouth bass have been a recent beneficiary of changing environmental conditions within the lake. Lang noted, "This regulation

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change should increase protection for bass and improve the quality of black bass fishing.”

The use of trot lines for sport fishing on Lake Michigan would be prohibited. Currently, trot lines using no more than 50 affixed hooks may be used if tagged and checked by the owner at least once every 24 hours. The DNR would clarify that bow and arrows may be used to take carp and some other species from the open waters of Lake Michigan.

Public hearings on the rule amendments are set for late January throughout the state. The first of three public hearings will be held January 27 in the Michigan City High School Cafeteria, 8466 West Pals Road. The Commission is expected to take final action on the proposals during regular monthly meetings in February or March.

Natural Resource Trustees Consider Assessment Plan for Indiana's Grand Calumet River Watershed

Natural resource damages assessment (“NRDA”) is a process by which Trustees examine injuries to natural resources to an area caused by the release of hazardous substances or oil. Currently, the geographic focus of an NRDA is the Grand Calumet River watershed in Lake and Porter Counties, including the Indiana Harbor and Ship Canal, nearshore Lake Michigan, and the Indiana Dunes National Lakeshore. “Natural resource damages” include damages to land, fish, wildlife, air, water, groundwater, drinking water supplies and other natural resources within the authority of the Trustees.

The Indiana Departments of Environmental Management and Natural Resources, together with the United States Department of the Interior, on behalf of the United States Fish and Wildlife Service and the National Park Service, have entered into a Memorandum of Agreement (“MOA”) regarding natural re-

sources under their trusteeship for the Grand Calumet River watershed. Elizabeth Admire is the Co-Trustee for IDEM. Gary Doxtater is the Interim Co-Trustee for DNR. William Hartwig, Director of Region 3 in Minneapolis, is the Trustee for the Department of the Interior, the federal agency which includes both the U. S. Fish and Wildlife Service and the National Park Service. Under the MOA the United States Department of Commerce, National Oceanic and Atmospheric Agency and the United States Environmental Protection Agency serve as advisors on this project.

The goal of the Grand Calumet NRDA is to restore or replace injured natural resources. In addition to restoration or replacement, the Trustees can claim damages for interim lost use of natural resources. Examples of compensable injuries include those for sport fishing and hunting, swimming, boating, hiking, bird-watching, and picnicking. The law governing the NRDA claim requires that the recovered damages be used to restore, replace, or acquire the equivalent of the injured natural resources. Punitive damages are not included in a damage claim.

NRDA Trustees assign a monetary value (damages) to natural resource injuries then seek to recover the damages from potentially responsible parties (“PRPs”). In 1996, the Trustees notified a group of PRPs in the Grand Calumet River watershed that the Trustees had completed a preliminary investigation of potential injuries to natural resources. The notification letter also indicated that the Trustees intended to perform an NRDA and that the PRPs were invited to participate in the development of the type and scope of the assessment, as well as the performance of the assessment.

The preliminary investigation found that both hazardous substances and oil had been released in the Grand Calumet River watershed. As a result, an assessment plan was completed and, in draft form, made available for public view and comment in October 1997.

The Trustees are currently reviewing comments to determine whether modifications should be made to the assessment plan.

For more information on the assessment plan, contact Mary Ann Habeeb, Department of Natural Resources, Indiana Government Center South, 402 West Washington Street, Room W255D Indianapolis, Indiana, 46204. Or telephone (317)233-3852. The assessment plan is also on the web at <http://www.ai.org/dnr/fishwild/asesment/plan.htm>

Partnerships in Grand Calumet Area

*by Adriane Esparza
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Trying to coordinate the different environmental planning initiatives in Northwest Indiana, individuals working in the region found a need to balance and coordinate the different efforts. At the end of 1996, staff from different agencies and organizations met to think about ways to integrate environmental planning. After one year of sorting through different initiatives, the players formed the Grand Calumet Area Partnership.

Partners in the Grand Calumet Area Partnership share the long-term goal to clean and revitalize the environment of the Grand Calumet. The Partnership is a voluntary effort and partners can change as the Partnership progresses toward the long-term goal. The Partnership focuses on the area in Lake County north of Interstate 80/94 to nearshore Lake Michigan and is bounded on the east and west by the Porter County border and the Illinois state border respectively.

Sharing the same geographic focus as the Citizens Advisory for the Remediation of the Environment, which advises the Indiana Department of Environmental Management (IDEM) as it implements the Stage 2 Remedial Ac-

Page 2	GRAND CALUMET AREA PARTNERSHIP (Respondent Parties)																						
	AREA WIDE INITIATIVES						LOCAL INITIATIVES				HABITAT			SEDIMENT INITIATIVES						SPECIFIC ISSUES			
	Plan					gram		ent Init	gy	shed Plan	S Study	ig	Conservation Init	Wetlands	al area preservation		il	net River	net River	ai	activity	ment	of Cooperation

tion Plan, the group spent considerable time distinguishing the two efforts. The CARE committee is a public advisory group whose role is to suggest priorities that will help IDEM delist use impairments, according to the 1978 Great Lakes Water Quality Agreement. IDEM's Commissioner appoints all CARE committee members. The Partnership is independent of any regulatory agency; however, various State and Federal agencies are partners.

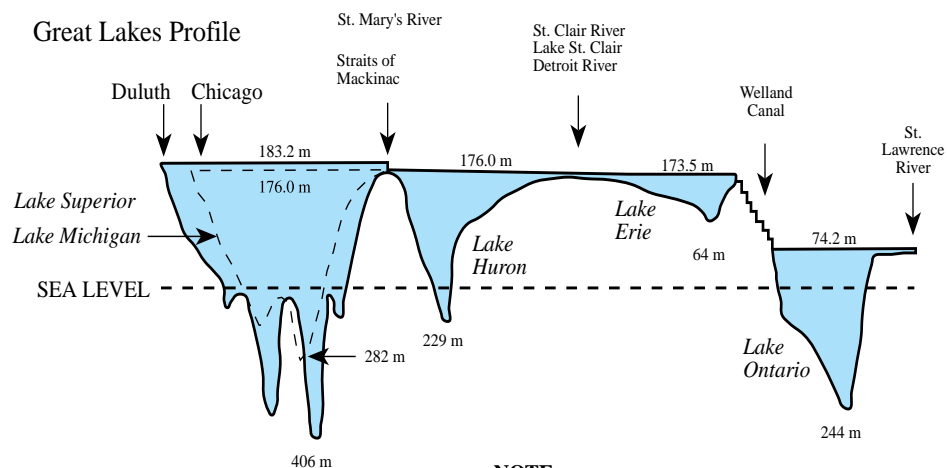
One valuable tool that the Partnership uses is a matrix that identifies participants and various initiatives. The initiatives include all planning efforts within the geographic area. Members identified the agency or organization that leads an initiative, who participates and who is an interested party. A glossary describes each effort and lists contact persons who lead the initiative. In upcoming months, the Partnership will provide more information about each initiative, including funding status and progress reports. Partners recognize that this tool is valuable to participants and the public.

The Partnership meets monthly to update everyone on an initiative's progress. The Partnership next will meet on January 16 at 12:30 p.m., local time, to discuss how the Chicago Wilderness Society can link with regional habitat initiatives. Possibly in February, the group may discuss the Natural Resources Damages Assessment process. The group welcomes anyone with an interest to participate in meetings, which the group holds in the Robert A. Pastrick Marina in East Chicago.

Regulation of Water Levels on the Great Lakes

The summer issue of *SHORELINES* provided information on the fluctuating water levels of Lake Michigan. DNR coastal dynamics expert, Steve Davis, explained how climatic conditions and water supply to the lakes factor into the high lake levels experienced this past summer.

Following the publishing of that article, *SHORELINES* received questions from readers about the impact of "lake level controls" on water levels in the Great Lakes. The following article will identify the location of these controls in the Great Lakes and their function. While some management of lake levels takes place, the article will point out this management has minimal impact on the lake levels experienced by shoreline property owners compared to the natural affects such as climatic change. In addition, the use of the lake level controls to further alleviate shoreline property damage has been studied, with results indicating further regulation by engineering systems could not be justified in light of costs and other impacts.



*The Great Lakes
"An Environmental Atlas
and Reference Book".
Third Edition 1995*

NOTE : 1. The profile is taken along the axes of the lakes.
2. The vertical exaggeration is 2000 times.
3. Lake surface elevations are given above sea level, and maximum depths are below lake surface.

Fluctuations in the water levels of Lake Michigan and other Great Lakes have occurred continually since the Great Lakes formed at the end of the Ice Age. The level of each of the Great Lakes depends on the balance between the quantities of water received and the quantities of water removed. Precipitation, evaporation, consumption, and diversions play a role in the balance of water supply in the Great Lakes. More than 100 years of water level records on the Great Lakes indicate there is no regular, predictable cycle.

The Great Lakes system is vast, containing 20% of the world's supply of fresh surface water. Lake levels affect the extent of flooding, shoreline erosion and shoreline property damage, wetland acreage, depth of navigation channels, and hydroelectric power output. The lakes have a total water surface area of 95,000 square miles. Spread evenly over the contiguous US, the Great Lakes would flood the land with about eight to ten feet of water.

The International Joint Commission (IJC), in compliance with the 1909 Boundary Waters Treaty between Canada and the US, implements plans under which limited regulation of Lake Superior and Lake Ontario takes place.

Until 1973, the IJC managed levels and flows for navigation and hydropower production purposes. Since then, the IJC has tried to balance these interests with prevention of shoreline erosion.

Lake Superior is the uppermost lake and the largest, containing 53% of total water in the system. Water from Lake Superior flows through the St. Mary's River to Lake Huron. Lake Michigan also drains to Lake Huron through the Straits of Mackinac. Water from Lake Huron flows to Lake Erie by way of the St. Clair River, Lake St. Clair, and the Detroit River. There are no artificial controls on the St. Clair and De-

troit Rivers that could change the flow from the Michigan-Huron Lakes system into Lake Erie. The outfall of Lake Erie via the Niagara River is also uncontrolled, except for some diversion of water through the Welland Canal. A large percentage of the Niagara River flow is diverted through hydroelectric power plants at Niagara Falls, but this diversion has no effect on the lake levels. Lake Ontario, the lowermost lake, drains into the St. Lawrence River which flows to the Gulf of St. Lawrence.

The regulation of Lake Superior influences the whole Great Lakes system; however, regulation of Lake Ontario has no impact on the upper lakes because of the difference in elevation at Niagara Falls. The outflows of Lake Superior and Lake Ontario are controlled to keep the lake levels within a specific range, near their long-term averages. Levels on Lake Superior have been regulated since 1921. Levels on Lake Ontario have been regulated since 1953. In addition, five diversions throughout the Great Lakes contribute to the regulation of lake levels. Diversions will be featured in a future issue of SHORELINES.

Current regulations of lake levels do not affect long-term lake level trends and cannot influence lake levels significantly in the short term. Regulation can only partially alter or alleviate lake level extremes. Changes in water levels of the Great Lakes from diversions and control works require a significant amount of time to take effect due to the amount of surface area of this lake system. On the upper lakes, it takes approximately three and one-half years for one-half of the anticipated result to occur. The full effect of change could take between 12 and 15 years. In contrast, natural conditions such as the drought of 1987-88 caused Lake Michigan water levels to drop four and one-half feet between October 1986 and January 1990.

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<http://www.dnr.state.in.us/lakemich/index.htm>

The regulation plan for Lake Superior outflows is administered by the International Lake Superior Board of Control. By varying the amount of water allocated to hydropower production in conjunction with adjustments of the gates in the Compensating Works at the head of the St. Mary's Rapids, the outflow from Lake Superior to Lake Michigan-Huron is regulated. From May 1 to December 1 the gates of the control works are set monthly. The outflow is a function of the mean Lake Superior level and other factors from the prior months as well as forecasts of future outflows. This flow can vary from 55,000 to 134,000 cubic feet per second (cfs). The plan requires that Lake Superior be regulated to keep the level of Lake Superior in balance with the level of Lakes Michigan-Huron and not be allowed to rise above 602 feet above sea level, under normal conditions.

An article in the US Army Corps of Engineers June 5, 1997 fact sheet "Great Lakes Update," provides responses to frequently asked questions regarding lake levels. One of these questions is whether the flow from Lake Superior could be reduced to lower levels on Lakes Michigan-Huron. The Corps responded it is possible to reduce the outflow of Lake Superior, but the action would result in raising the Lake Superior level which is already high. Another question is whether the outflow from Lake Superior could be increased to lower the water level on Lake Superior. According to the Corps, increasing outflows from Lake Superior would raise the Lakes Michigan-Huron level, which is already high.

The regulation plan of Lake Ontario outflows is administered by the International St. Lawrence River Board of Control. The plan was instituted in 1963 to accomplish several goals including: 1) provision of deep-draft navigation through the St. Lawrence, Lake Ontario system; 2) provision of hydroelectric power generation; 3) protection of shoreline property owners; and 4) improvement of Montreal harbor levels. The outlet of Lake Ontario is regulated

by a series of structures and channel enlargements. The Iroquois Dam, Moses-Saunders Power Dam, Long Sault Dam, and the Eisenhower and Snell Navigation Locks contribute to the control of lake levels. The main control structure, Moses-Saunders Power Dam, has the capacity to discharge 333,000 cfs of water from Lake Ontario into the St. Lawrence River. The long-term average outflow of Lake Ontario is about 240,000 cfs.

According to the Corps in "Great Lakes Update," regulation has reduced the occurrence of extreme high and low water levels of Lake Ontario. Lake Ontario is presently about 2.3 feet lower than it would have been if regulation was not put in place. The excavation in the St. Lawrence River that occurred when the hydropower project and seaway were constructed has made higher outflows possible when high water supplies occur. Though Lake Ontario receives all of the outflow from the other Great Lakes, it was the only Great Lake that did not set record high levels in 1985-86.

Several studies have been undertaken to research the prevention of shoreline damage including the possibility of further regulation of flows and lake levels. The most recent study was completed by the International Joint Commission in 1993. The major conclusions of the IJC report are: 1) the Great Lakes water level fluctuation situation must be approached on a system-wide basis; 2) that specific measures aimed at efficient system-wide water level fluctuations are probably futile; and 3) that there must be a recognition of need for a fundamental change in the conventional approach to alleviating adverse consequences.

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U.S. ARMY CORPS OF ENGINEERS, NORTH CEN-

Natural Areas - 20 Years Later

In the late 1970's the DNR Division of Nature Preserves identified and evaluated natural areas in Northwest Indiana. At the same time, the Division of Fish and Wildlife looked at select wetlands in the Lake Michigan watershed in Lake, Porter, and LaPorte Counties. The effort was part of Indiana's earlier efforts to explore Coastal Zone Management. The study by the Division of Fish and Wildlife called for the exploration of 45 wetland areas greater than 25 acres. Following field inspection, the wetlands were rated according to several predetermined factors. The process resulted in the documentation of 25 priority wetlands. To identify and inventory natural areas the Division of Nature Preserves analyzed aerial photograph for areas that had potential as high quality, pre-settlement natural community types. Several significant natural communities were discovered and recorded by the Division of Nature Preserves. In 1996, the DNR Division of Nature Preserves was provided the opportunity, through additional Coastal Zone Management funding, to re-evaluate these wetlands and natural areas to learn what changes had taken place over the last 20 years.

The 25 priority wetlands were revisited to determine whether the wetlands had changed in terms of size, cover type, and context. John Bacone, Director of the Division of Nature Preserves, said, "Generally, the wetlands were found to be basically intact. All were still the same size as they were in 1979, and two had increased in size due to a man-made pond addition and a cropland reversion." Bacone said the covertypes were basically the same as well. He said the biggest change since 1979 was in terms of context. "In 1979, most were rural. By 1996, many have become more

urbanized. More than half of the wetlands now have some housing development as a neighbor." While none of the wetlands have been filled or destroyed, the integrity of the wetlands is now somewhat threatened. Details of this study are documented in a report titled, THE STATUS OF THE TOP 25 PRIORITY WETLANDS IN INDIANA'S COASTAL ZONE: A COMAPRISON 1979-1996. Watch for the report to be made available on the Lake Michigan Coastal Coordination Program homepage.

Remaining natural areas in Northwest Indiana are wide ranging including bogs, boreal flatwoods, natural lakes, fens, dune forest, shrub bog, sand flatwoods, dune and swale, prairie, and sedge meadow. And the list goes on. Bacone enthusiastically explained, "The unique aspect of these natural areas is that so many diverse types of natural areas exist in a relatively small geographic location." Interestingly, at the southern tip of Lake Michigan in Northwest Indiana one can find floral elements from farther north (boreal woods), farther west (prairies), and farther east (deciduous forest) growing in the same natural area.



Black Oak, Sand Savannah, Hoosier Prairie
Nature Preserve, Lake County

The re-evaluation of natural areas Bacone and his group conducted in 1996 included approximately 60 areas. Results of last year's field inspection of high quality natural areas indicate eight areas are now protected in some fashion; six are privately owned and relatively intact; and three are considered to be eliminated. Of some of the lesser quality areas looked at in the late 1970s, five are publicly managed; fifteen are privately owned and relatively intact; and seven are eliminated. A few additional sites have been found since the

1979 inventory and of those sites, fifteen are relatively intact and four have been eliminated. Results of this evaluation will be compiled by the end of this year.

Bacone suggested there are several reasons why these areas are still intact after 20 years. He said the "primary protection for wetlands has been regulatory programs. In addition, the increasing awareness of the importance of wetlands is also a contributing factor." Bacone claims natural areas are generally stable if not disturbed, which keeps them healthy. He also cited a diversity of species as a factor.

When asked what contributes to elimination of a natural area Bacone said "invasive exotic species have become the worst problem. There seem to be more problem species every year. Last summer we inspected several areas which were beautiful 20 years ago and found they were now choked with exotic plants."

"The percentage of natural land left in Northwest Indiana is not great, but the significance lies in the number of different types of areas that remain. Northwest Indiana is truly blessed."

Origins of the "Public Trust Doctrine"

The "public trust doctrine" helps define the legal rights of citizens to enjoy the use of Lake Michigan and Indiana's other navigable waters. The doctrine places responsibility in the state of Indiana to protect those rights, not only for the citizens of today but for future generations as well. As a result, the doctrine generally prohibits the transfer

of navigable waters from public to private ownership.

Although of major significance, the public trust doctrine can be difficult to understand and, when referenced at all, is often misunderstood or misinterpreted. Following is the first of a two-part series on the public trust doctrine. In *Origins of the "Public Trust Doctrine,"* the historic backdrop of the concept is explored. The spring issue of *SHORELINES* will offer an overview of the "Public Trust Doctrine" in Indiana.

The public trust doctrine provides that public trust lands, waters, and living resources are held by a state in trust for the benefit of all the people. The doctrine recognizes the right of the public to fully enjoy public trust lands, waters, and living resources for a wide variety of public uses. In general, public trust waters are the "navigable waters" of a state. Public trust lands are the lands beneath those navigable waters up to the "ordinary high watermark." For a discussion of ordinary high watermark, see the Fall issue of *SHORELINES*.

The origin of the public trust doctrine is ancient, frequently attributed to Roman civil law. As written in the second century, the basic concept provided: "By the law of nature these things are common to all mankind--the air, running water, the sea, and consequently the shore of the sea. No one, therefore, is forbidden to approach the seashore, provided that he respects habitations, monuments, and the buildings, which are not, like the sea, subject only to the law of nations."

Roman civil law eventually influenced the laws of Western European nations. England generally adopted its principles after the Magna Carta. English common law was, in turn, adopted by the United States.

Differing geographic conditions in England and the United States caused an evolution of the concept of navigability, and as a result application of the "public trust doctrine." In England, part

of an island generally lacking major rivers, the term is largely reserved to ocean tidewaters. In the United States, with its vast continental interior and great waterways, the concept has come to be applied both to salt and fresh waters.

Two legal events form the main foundation for this divergence. One is the development of what is sometimes called the "equal footing doctrine." The other is derived from commerce as practiced in the United States on major inland waters.

The equal footing doctrine grew from what is commonly called the "Northwest Ordinance of 1787" and from 19th century case law. The Ordinance set guidelines for the government of the Northwest Territory, including Indiana and the western Great Lakes states. The ordinance provided that any state joining the Union would be admitted "on an equal footing with the original States, in all respects whatever." As reflected in an 1845 decision by the US Supreme Court, "First, The shores of navigable waters, and the soils under them, were not granted by the Constitution to the United States, but were reserved to the states respectively. Secondly, The new states have the same rights, sovereignty, and jurisdiction over this subject as the original states." The practice of admitting new states as equals to the original 13 is now known as the "equal footing doctrine."

In the 1840s, commercial shipping was already an important industry on the nation's inland waters. The concept that navigable waters were limited to seas and oceans had fallen out of step with this commercial reality. A serious boating accident took place on the Mississippi River at a time when its waters were not considered legally navigable; this accident helped motivate Congress in 1845 to pass legislation which conformed law to commerce. Major inland waters, although freshwater, were deemed by the Congress to be navigable.

The 1845 legislation was challenged before the US Supreme Court, and the result was an 1851 decision which permanently resolved the navigability of major inland waters. On a starlit night in 1847, 40 miles out on Lake Ontario, traveling at eight miles per hour the steamship *GENESSEE CHIEF* struck the sailing sloop *CUBA*. The *CUBA* was laden with nearly 6,000 bushels of wheat, traveling not more than three miles an hour on a smooth lake. The only helmsman onboard the *GENESSEE CHIEF* was allegedly drunk. The owners of the *CUBA* sued the owners of *GENESSEE CHIEF* for damages, asserting the 1845 law as the legal basis for viewing Lake Ontario to be navigable and, so, subject to federal court jurisdiction. The owners of the *GENESSEE CHIEF*, lacking much of a factual defense, argued the 1845 law was unconstitutional.

The United States Supreme Court sided with the owners of the *CUBA*. It found the English "tidal" test of navigability was inadequate when applied to the rivers and lakes of the United States. The fact the North American continent contained "thousands of miles of public navigable water, including lakes and rivers in which there is no tide" could not rationally be ignored. The Court conceded the old common law rule might be adequate for England, where the rivers were small and rarely navigable above the tidal ebb and flow. The Court reasoned, however, "the English standard of navigability does not fit the American continent with its Great Lakes and rivers." Lake Ontario was navigable, both in fact and in law.

With this legal backdrop, Indiana entered statehood in 1816. Enjoying an "equal footing" with other states, Indiana received title to its navigable waters and the lands beneath them. Those waters were to be held in public trust for all citizens. The next issue of *SHORELINES* will provide an overview of how the public trust doctrine has been applied in Indiana.

Illinois-Indiana Sea Grant Awarded College Status

The US Department of Commerce recently named the Illinois-Indiana Sea Grant the nation's 27th Sea Grant college program. The announcement designating Purdue University and the University of Illinois as Sea Grant colleges was made by Undersecretary James Baker during a keynote speech at the Great Lakes Commission meeting on October 3 in Chicago.

According to Program Director Phillip E. Pope, "We're extremely pleased with this designation." He said the "attainment of College status is a capstone of all the hard work of a very dedicated staff. Attaining college status provides the springboard for Illinois-Indiana Grant in its future role in the southern Lake Michigan region."

As a result of achieving College status, Pope said Illinois-Indiana Sea Grant Program will "enhance its support of research and outreach to restore brownfields for re-use and added greenspace, and to improve water quality and a healthy environment." He reflected the program will add "two area specialists in non-indigenous species and fisheries" and in "sustainable economic development." The program will increase funding for "non-indigenous species research, outreach, and education for zebra mussels, river huffe, and round goby." Pope said the program also "will expand its environmental literacy for youth programs."



The Lake Michigan Coastal Coordination Program is an effort by the State of Indiana to improve communications and cooperation among the agencies who participate in activities in the Lake Michigan coastal region. See <http://www.dnr.state.in.us/lakemich/index.htm>

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